Newsletter - May 1996

I NTERNATIONAL
S TUDY OF
A STHMA AND
A LLERGIES IN
C HILDHOOD

Thank you for your positive responses to the January Newsletter. I would welcome items from anyone for inclusion in the next newsletter. This includes abstracts presented at scientific meetings.

- *Innes Asher*
  Auckland

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ISAAC Modules

On Page 2 is the order form for ISAAC Modules. If you wish to order please photocopy, complete and send to David Strachan.

News from the ISAAC International Data Centre

We are very busy collating, checking and analysing Phase One data. We have data submitted for 13-14 year olds from 119 centres in 45 countries, involving 366,106 children; for 6-7 year olds from 74 centres in 34 countries, involving 208,723 children.

We are aware that there are some differences in approach taken by different centres.

In preparation for presenting the global ISAAC Phase One data this September, we have been collating information from the Registration Documents and Data Registration Forms into a data base. This will enable production of a very comprehensive and accurate Report on the ISAAC methodology actually used. This Report will provide an invaluable data base and resource not only for the preparation of papers and presentations for scientific meetings but also for those collaborators who wish to present regional or national comparisons of ISAAC Phase One data.

Innes Asher, Tadd Clayton, Philippa Ellwood, Ed Mitchell, Alistair Stewart
Auckland.

ISAAC Publications

The ISAAC Steering Committee is preparing the four initial papers on the global study covering the following 4 areas: wheezing, rhinitis, eczema and a summary. The steering committee recommended that the journals to which these will be submitted may include European Respiratory Journal, Pediatric Allergy and Immunology, British Medical Journal and Lancet.

Professor Gerd Cropp, Editor-in-Chief, Pediatric Pulmonology has written to the executive to encourage submissions of certain ISAAC papers to the journal. He may be contacted at:
Gerd J. A. Cropp, M.D., Ph.D., Editor-in-Chief, Pediatric Pulmonology
70A Buena Vista Terrace
San Francisco, CA 94117
Tel: 415-621-1360
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European Respiratory Society, Annual Congress, Stockholm, 7-11 September 1996
The European Respiratory Society has invited the ISAAC Steering Committee to submit abstracts for presentation at a session at the Annual Congress in Stockholm, September 7-11, 1996, and these have been accepted. This will include the first presentation of the ISAAC Phase One global data and will be a significant milestone in the development of ISAAC. Collaborators are encouraged to attend this session.
To obtain further information about the ERS meeting, please contact:
ERS '96, Stockholm Convention Bureau
PO Box 6911 S-102 39
Stockholm, Sweden fax 46 8 34 84 41

ISAAC Modules - Order Form

The "core" questionnaires included in the ISAAC Manual have served well for phase I and have been widely used both within ISAAC and in other studies. From an early stage it was envisaged that additional modules would be developed for use in ISAAC, in particular in phase II studies. Over the past few years a number of additional modules have been developed by the Methods Development Subcommittee of the ISAAC Steering Committee. These will not be published formally, but they are being made available to ISAAC collaborators on request from January 1996. The modules are not subject to copyright but those who obtain them using the form below will be mailed updated versions as they appear. The intention is to keep amendments to a minimum but to maintain a comprehensive archive of methods which have been developed for use in ISAAC studies. Additions are welcomed.

Please indicate which modules you require, type your name and full mailing address at the bottom of the page and send this form to:

Dr David Strachan
Department of Public Health Sciences
St George's Hospital Medical School
Cranmer Terrace
London SW17 ORE
UNITED KINGDOM

Tel:(44)181 725 5429
Fax:(44)181 725 3584
E-mail:d.strachan@sghms.ac.uk

		Please tick:
1. Phase I core questionnaires		
1.1	Core questionnaire - wheezing	☐1.1
1.2	Core questionnaire - rhinitis	☐1.2
1.3	Core questionnaire - eczema	☐1.3
1.4	Core questionnaire - video questions (tape not included)	☐1.4
2. Supplementary questionnaires		
2.1	Additional respiratory questions (cough, phlegm, breathlessness)	☐2.1
2.2	Clinical management - asthma and wheezing	☐2.2
2.3	Clinical management - hayfever and rhinitis	☐2.3
2.4	Clinical management - eczema	☐2.4
3. Child contact modules		
3.1	Examination for flexural dermatitis	☐3.1
3.2	Skin tests for atopy	☐3.2
3.3	Bronchial responsiveness to hypertonic saline	☐3.3
3.4	Blood sampling	☐3.4
3.5	Serum IgE tests	☐3.5
3.6	Storage of dried blood spots for genetic analyses	☐3.6
4. Environmental modules		
4.1	Dust collection for aeroallergen analysis	☐4.1

Please type your name and mailing address below (this will be used as a return address label):

Abstract from the **International Epidemiology Association (IEA) Regional Meeting,** The Hague - August, 1995

SELF-REPORTED WHEEZING AND SYMPTOMS OF ALLERGIC RHINITIS IN ADOLESCENT SCHOOLCHILDREN IN RELATION TO SURROGATE MEASURES OF TRAFFIC DENSITY ON STREET OF RESIDENCE

Duhme H, Kraemer B, Chambless L, Schmid M, Weiland SK, Keil U;
Institute of Epidemiology and Social Medicine Munster, Germany

A survey of 4003 schoolchildren was conducted in Münster, Germany in 1994 as part of the International Study of Asthma and Allergies in Childhood (ISAAC). Information was assessed by a self-completed written questionnaire and data of a group of 3703 12-15 year old German students was analyzed. The 12 months prevalences of wheezing and symptoms of allergic rhinitis were 14% and 28.8%, respectively. As a surrogate measure of traffic density on the street of residence students were asked about the frequency of truck traffic on weekdays and how often during the day the traffic noise was so intensive as to force the child to shut the windows in order not to be disturbed (categories: never (N), seldom (S), frequent (F), and constant (C)). We found a positive association between the surrogate measures of traffic density and the 12 months prevalence of wheezing as well as of symptoms of allergic rhinitis. The sex and age adjusted prevalence odds ratios (ORs) and 95% confidence intervals (C1s) contrasting the categories (S), (F), and (C) against (N) were for truck traffic and wheezing OR(S)=1.11 (C1:0.88/1.41), OR(F)=1.53 (C1:1.15/2.05), OR(C)=2.15 (C1:1.44/3.21) for truck traffic and symptoms of allergic rhinitis OR(S)=1.26(C1:1.05/1.51), OR(F)=1.71 (C1:1.36/2.15), OR(C)=1.96 (C1:1.40/2.76), for traffic noise and wheezing OR(S)=1.37 (C1.08/1.75), OR(F)=1.45 (C1:0.90/2.34), OR(C)=1.53 (C1:0.87/2.66), and for traffic noise and symptoms of allergic rhinitis OR(S)=1.58 (C1:1.26/1.83), OR(F)=1.79 (C1:1.23/2.60), OR(C)=1.89(C1:1.21/2.96), respectively. The results confirm previous studies indicating an association between traffic density and an exacerbation of symptoms of asthma and allergic rhinitis. Putative biases and confounders and improvements of the measurement of exposure will be discussed.

Other abstracts from the **Thoracic Society of Australia and New Zealand Annual Scientific Meeting,** Perth - 1996

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DIFFERENCES IN PREVALENCE OF ASTHMA AND WHEEZE IN SYDNEY.

Downs SH, Brown NJ, Xuan W, Haby MM, Peat JK.
Department of Medicine, University of Sydney, NSW 2006.

The aim of the study was to assess whether children living in an inner city area, which is thought to have higher levels of air pollutants, have a higher prevalence of asthma. **Methods:** All 6-7 year old children from a random sample of 42 schools in four areas within a 10km radius of Sydney GPO were surveyed in 1993. We used the ISAAC questionnaire to collect information about asthma and possible risk factors. We defined 'recent wheeze' as wheeze in the last 12 months; 'recent asthma' as recent wheeze plus a diagnosis of asthma ever; 'possible asthma' as recent wheeze but no diagnosis of asthma ever or a past diagnosis but no recent wheeze; 'moderate asthma' as diagnosis plus recent hospital visit and/or at least four recent attacks of wheezing. **Results:** 2807 children were included (response rate of 82%). A higher proportion of children from the West of Sydney were reported with symptoms and medical treatment compared to those from the North, South and East.

The odds ratios for possible, recent and moderate asthma in the West compared to the other areas were 1.5 (1.1,2.0)p=0.03, 1.6(1.3,2.1)p<0.001 and 1.8(1.3,2.6)p<0.001 respectively. The difference remained after adjustment for potential confounding factors (child's place of birth, ethnicity, carpet in child's

bedroom, age of home and the ratio of people to bedrooms). The adjusted odds ratios were 1.4(1.0,1.9)p=0.04, 1.4(1.0,1.8)p=0.04 and 1.5(1.0,2.3)p=0.05 respectively. **Conclusion:** Children from the West had a slightly increased risk of asthma which was not explained by any of the potential confounders in the current study. Other unidentified risk factors associated with living in the inner city may be responsible.

Supported by Allen + Hanburys

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REGIONAL COMPARISONS OF ASTHMA, RHINITIS AND ECZEMA IN NEW ZEALAND CHILDREN: ISAAC PHASE ONE 1992-3

MI Asher[1], D Barry[2], T Clayton[1], J Crane[3], W D'Souza[3], P Ellwood[1], R Ford[4], R Mackay[5], EA Mitchell[1], C Moyes[6], P Pattemore[7], N Pearce[3], AW Stewart[1].
[1]Faculty of Medicine and Health Science, University of Auckland; [2]Memorial Hospital, Hastings; [3]Wellington School of Medicine; [4]Child and Family Division, HealthLink South; [5]Nelson Hospital; [6]Department of Child Health, Whakatane Hospital; [7]Department of Paediatrics, Christchurch Clinical School.

Purpose: To compare responses to questions about asthma and allergies in six centres of New Zealand. **Methods:** The International Study of Asthma and Allergies in Childhood (ISAAC) Phase One was undertaken in six New Zealand centres during 1992-1993: Auckland, Bay of Plenty, Christchurch, Hawke's Bay, Nelson, Wellington. Approximately 3000 children were studied in each of two age groups per Centre (6-7 years; 13-14 years). The ISAAC standardised written questionnaires were used to identify asthma, rhinitis and eczema symptoms. The written questionnaire in the younger age group was completed by the parent/guardian. The older age group self-completed the written questionnaire and also a video questionnaire about asthma symptoms. The effect of centre was studied with logistic regression using centre, gender, age and ethnicity as the independent variables. **Results:** In the 6-7 year olds the comparison of all centres showed a significant difference across regions for almost all questions; Nelson was significantly lower than the other 5 centres for most of the questions. Among 13-14 year olds the comparison of all centres showed a significant difference across regions for most written and video questions, but no single centre was consistently higher or lower than the rest. **Conclusions:** The younger age group in Nelson had significantly lower prevalence of symptoms of asthma, rhinitis and eczema than the other centres. Explanations for the unique Nelson finding will be subjects of further study.

Supported by the Health Research Council of New Zealand and Glaxo New Zealand.

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CHILDHOOD ASTHMA AND ALLERGY IN AN INNER CITY MALAYSIAN COMMUNITY: INTRA-OBSERVER RELIABILITY OF TWO TRANSLATED INTERNATIONAL RESPIRATORY QUESTIONARIES

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The objectives of this study were (a) to examine the intra-observer reliability of the Malay language versions of the International Study of Asthma and Allergy in Children (ISAAC) and the American Thoracic Society (ATS) questionnaires and (b) using the more reliable of these questionnaires, to estimate the prevalence of asthma and allergy related symptoms in an ethnically homogenous inner city community in Kuala Lumpur. **Methods:** The study design was cross sectional. The population were 7-12 year old school

children of Malay ethnic origin living in an inner city area of Kuala Lumpur. The sample was 787 children attending the only primary school in the area. The Malay versions of the ISAAC and the ATS questionnaires were administered twice, one month apart, and were completed by parents. Agreement between the first and second responses to the same questions was assessed by Cohen's kapa. Kappa values < 0.4 were considered indicative of poor intra-observer reliability, 0.4 to 0.59 moderate reliability, 0.6 to 0.79 good reliability and >0.79 excellent reliability. **Results:** 77.9% and 36.3% of parents responded to the first and second administrations of the questionnaires respectively. Kappa values of > 0.4 were obtained in 25/27 (92.6%) and 22/28 (78.6%) questions of the ISAAC and ATS questionnaires respectively. Excellent kappa values were obtained in 9/27 (33.3%) questions of the ISAAC questionnaire versus only 1/28 (3.6%) question of the ATS questionnaire. In the ISAAC questionnaire all questions on wheeze had good reliability while those on asthma had excellent reliability. Questions on allergic symptoms had poor to moderate reliability. In contrast, questions on wheeze only had moderate reliability in the ATS questionnaire while the question on asthma was excellently reliable. Questions on allergic symptoms had moderate to good reliability while those on cough, phlegm and bronchitis had poor reliability. According to the ISAAC questionnaire the prevalence of ever wheeze, wheeze in the last 12 months, ever asthma and wheeze with exercise in last 12 months were 12.5%, 6.6%, 10.3% and 5.9% respectively. The prevalences of ever sneeze or runny nose, sneeze or runny nose in the last 12 months, watery eyes in the last 12 months and ever eczema were 15.2%, 11.1%, 4.4% and 8.5% respectively. **Conclusions:** We conclude that the translated ISAAC questionnaire has better reliability than the translated ATS questionnaire. Asthma and related symptoms are common among Malay children in inner city Kuala Lumpur.

This study was supported by research grant Ukm F2/95.

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VALIDATION OF AN INTERNATIONAL VIDEO QUESTIONNAIRE FOR MEASURING ASTHMA PREVALENCE

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Comparisons of asthma prevalence using a self-administered written questionnaire among different ethnic groups may be unreliable due to different cultural interpretation of asthma symptoms. An international video questionnaire (VQ) for measuring asthma prevalence was validated in relation to bronchial hyperresponsiveness (BHR) in a group of Chinese schoolchildren. Comparison was made with a Chinese version of a self-completed written ISAAC questionnaire (WQ). **Methods:** Both the VQ and the WQ were administered to 189 Chinese schoolchildren aged 13-14 years, who subsequently underwent bronchial challenge with methacholine. BHR was defined as $PD_{20} \leq 8\mu mol$ methacholine. **Results:** The sensitivity and specificity for BHR was higher for positive responses to questions 1 (moderate wheezing at rest) and 2 (wheezing and dyspnoea after exercise) of the VQ (0.81 and 0.73) than to corresponding questions in the WQ (0.69 and 0.70), although the differences did not reach statistical significance (P=0.32). Additional positive responses to other questions in the VQ or WQ did not significantly improve the sensitivity or specificity to BHR (P=0.78). A positive response to question 5 (severe wheezing and dyspnoea at rest) in both the VQ and WQ was highly specific (0.91 and 0.98) but not sensitive (0.67 and 0.33) for severe BHR (PD_{20}[sic]$\leq 2\mu mol$ methacholine). Responses between the 2 questionnaires agreed in at least two thirds of subjects for each question (range 66 to 91%). **Conclusions:** For determining asthma prevalence, the international VQ is a valid and reliable method when compared to the WQ. The VQ may be useful in comparing asthma prevalence between ethnic groups as it helps to eliminate biases due to different languages and cultural interpretation of asthma symptoms.

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CHILD ASTHMA AND HOUSING DESIGN

Brown NJ, Downs SH, Xuan W, Haby MM, Tovey E, Peat JK.
Department of Medicine, University of Sydney, NSW 2006.

The aim of this study was to examine whether there was an association between housing design and childhood asthma in Sydney. **Methods:** We studied 2807 children aged 6 and 7 years from a random sample of 42 schools within a 10km radius of Sydney GPO (response rate 82%). We used the ISAAC questionnaire with 27 questions relating to respiratory and allergic symptoms and 7 questions relating to housing characteristics. We defined 'recent wheeze' as wheeze in the last 12 months; 'recent asthma' as recent wheeze plus a diagnosis of asthma ever; 'possible asthma' as recent wheeze but no diagnosis of asthma ever or a past diagnosis but no recent wheeze. **Results:** The prevalence of possible asthma was 14.6% (12.9, 15.5) and of recent asthma was 16.2% (14.82, 17.58). The relationship between recent and possible asthma and housing design is as follows:

Dominant characteristic	Possible asthma Adjusted OR	P value	Recent asthma Adjusted OR	P value
Construction (brick, 91%)	1.0 (0.6, 1.6)	0.9	1.1 (0.7, 1.8)	0.7
Floor (concrete, 34%)	0.9 (0.7, 1.2)	0.6	0.7 (0.5, 0.9)	0.02
Age (>50 years old, 52%)	1.0 (0.7, 1.3)	0.8	0.9 (0.7, 1.2)	0.3
Carpet in child's bedroom (91%)	0.6 (0.4, 1.1)	0.1	0.8 (0.4, 1.3)	0.3
Carpet in lounge room (85%)	1.2 (0.7, 1.8)	0.5	1.4 (0.9,2.2)	0.2

Conclusion: Descriptive housing characteristics, collected by this questionnaire, were generally not significant risk factors for children to have asthma. Housing design may not be important or questionnaire items alone may not be good surrogates for estimating allergen exposure which is known to influence the prevalence of asthma.

Supported by Allen+Hanburys.